NASA Procedural Requirements

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Subject: NASA Technology Commercialization Process w/ Change 1 (4/9/04)

Responsible Office: Exploration Systems Mission Directorate

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CHAPTER 4. Identifying and Reporting New Technologies and Innovations (Including Software)

4.1 What Are New Technologies and Innovations?

4.1.1 Procedurally, new technologies and innovations fall into one of two categories: "reportable items" or "subject inventions." The definitions of these terms, their reporting requirements, and their respective rights in reported technologies and innovations are essentially identical for contracts, grants and cooperative agreements. For contracts, the definition of a "subject invention" is provided in the Federal Acquisition Regulations (FAR) Sec. 27.301, Definitions, as modified by the NASA FAR Supplement (NFS) Sec. 1827.301, Definitions, while the definition of a "reportable item" is provided in NFS Sec. 1827.301, Definitions, (http://www.hq.nasa.gov/office/procurement/regs/1827.htm). The NASA regulations applicable to grants and cooperative agreements with institutions of higher education, hospitals, and non-profit organizations are provided at 14 CFR Part 1260 (http://ec.msfc.nasa.gov/hq/grcover.htm). The clause at 14 CFR Part 1260.28, Patent Rights, indicates that such grants and cooperative agreements are subject to the provisions of 37 CFR 401.14 (the standard Patent Rights clause developed by the Department of Commerce under the Bayh-Dole Act) which contains the definition of "subject invention." The NASA regulations applicable to cooperative agreements with commercial firms are provided in 14 CFR 1274 (http://ec.msfc.nasa.gov/hq/grcover.htm). Definitions may be found in the Patent Rights clauses at 14 CFR 1274.912 for large businesses and 1274.913 for small businesses.

4.1.2 Regardless of which clause is applicable, what qualifies as new technologies and innovations is very broad. They include any invention, discovery, improvement, or innovation that was either conceived or first actually reduced to practice in the performance of NASA work. This includes any new and useful processes, machines, manufacture, or composition of matter; or any new and useful improvement in existing processes, machines, manufacture, or compositions of matter. Also included are new computer programs, and improvements to, or new applications of, existing computer programs, whether or not copyrightable. A representative list of new technologies and innovations includes, but is not limited to: new or improved techniques, products, devices, materials, methods, processes, chemical compositions, systems, machines, apparatuses, articles, fixtures, tools, or software.

4.1.3 With such a broad definition, new technologies and innovations can come from almost any type of NASA activity. In addition, new technologies and innovations may occur at a system, subsystem, or component level. That is, the development of a "system" or overall "technology area" could yield numerous innovations.

4.2 Why Report New Technologies and Innovations (Including Software?)

4.2.1 New Technologies and Innovations (including software) should be reported because:

a. Reporting is required of NASA employees by NPD 2091.1 and of contractors, grantees and recipients by the terms of their contract, grant or cooperative agreement;

b. Reporting New Technologies and Inventions as soon as possible after conception allows the Center's Patent Counsel to determine ownership and whether intellectual property protection is appropriate;

c. Reporting prior to public disclosure, publication, or presentation at a conference allows the Center's Patent Counsel to file a patent application prior to possible statutory bars which may preclude patent protection;

d. Filing a patent application establishes and protects the government's rights in the innovation.

e. Secrecy provides little protection for the innovation;

f. Publication, while allowing recognition through peer review, may jeopardize the possibility of obtaining a patent on the innovation;

g. Identification of a new innovation can result in benefits to the U.S. economy and to NASA;

h. Identification of a new innovation provides professional recognition;

i. Reporting provides consideration for monetary incentive awards for the innovators (contact Center's CTO for more information); and

j. Increased visibility and utility for the innovation can come from publication in NASA Tech Briefs once a patent application is filed or a decision is made not to file.

4.3 Who are the Innovators?

4.3.1 In many successful developments, there is a tendency to identify as many participants as possible to share in any rewards. However, in reporting new technologies and innovations, identify only those who have made direct, unique, and significant contributions to the conception of the innovation. Conception within the meaning of the patent law requires the formation, in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is thereafter to be applied in practice. The idea must be of specific means, not just a desirable end result, and must be sufficiently complete so as to enable anyone of ordinary skill in the art to which the invention applies, to reduce the concept to practice. To be a joint inventor, one must in some way have beneficially affected the final conception of the claimed invention.

4.3.2 When filing a patent application, properly identifying the inventors becomes very important. A patent can be declared invalid if either too many contributors (i.e., extraneous; noninventors included) or too few contributors (inventors omitted) are named on the patent application or patent.

4.4 Who Should Report New Technologies and Innovations (Including Software?)

4.4.1 New technologies and innovations (including software) should be reported by:

a. Small business commercial firms awarded NASA procurement contracts or cooperative agreements to the extent required in the Patent Rights Clause in the contract or cooperative agreement.

b. Large business commercial firms awarded NASA procurement contracts or cooperative agreements to the extent required in the New Technology Clause of the contract or cooperative agreement.

c. Nonprofit organizations, colleges, and universities awarded NASA procurement contracts, grants, or cooperative agreements to the extent required in the Patent Rights Clause in the contract, grant, or cooperative agreement.

d. In accordance with NPD 2091.1, each NASA civil service employee who makes an invention is required to promptly report the invention.

4.5 How to Report A New Technology or Innovation

4.5.1 Figure 4-1 shows the process flow overview for identifying and reporting new technologies and innovations. The key parties are identified above each box in Figure 4-1. Appendix B provides a detailed explanation of the New Technology Reporting process and of the responsibilities of NASA personnel in that process.

4.5.2 All new technologies and innovations are tracked in NASATechTracS (per NPD 7500.2). In order to facilitate and minimize the burden of reporting, NASA has developed an electronic New Technology Reporting (eNTRe) capability. eNTRe (http://entre.nasa.gov) provides desktop and Web-based tools which allow the innovator to prepare and work on the New Technology Report locally and, when ready, to electronically submit the item to NASATechTracS. Each Center's Commercial Technology Office can provide assistance to NASA managers in obtaining access to, and using, eNTRe.

4.5.3 New technologies and innovations can also be reported with a form. NASA Form (NF)1679, Disclosure of Invention and New Technology (Including Software), is the preferred form. However, contractors may use their own company invention disclosure forms as long as the company form provides information equivalent to that requested in NF 1679. In accordance with specific Center practices, NASA civil servant employees should submit NF 1679 to their Center's Commercial Technology Office or Patent Counsel. The receiving Office will then disseminate the NF 1679 to appropriate Center Offices involved in the Technology Commercialization Program. NASA contractors,

grantees, and recipients will submit NF 1679 or other appropriate reporting forms to the NASA New Technology Representative named in the contract, grant, or cooperative agreement.

4.5.4 As NASA contractors report new technology developments, NASA activities are encouraged to investigate commercial applications of those technologies and to establish partnerships for applying the new technologies to commercial industry products and services.

4.6 How is a New Technology's Commercial Potential Assessed?

4.6.1 Commercial potential is tied to the value of the technology - its potential benefits, its advantages in the marketplace, and its impact on profitability. Several essential technical, market, and intellectual property issues must be addressed when assessing value. Secondary sources of information (e.g., published data, market research reports, Internet searches) and primary sources are probed. Primary sources include inventors, experts, end-users, and potential licensees. Experts can be found in industry, academia, and government laboratories. The Center's Commercial Technology Office and Patent Counsel have the lead in performing this assessment.

4.6.2 The assessment should focus on determining commercial viability by, among other things, considering the following questions:

(1) Does the technology add value throughout the supply chain?

(2) Does it make a product that is better than the existing and emerging technologies?

(3) Is someone willing and able to develop and build, and someone willing to buy the end product - and will both realize increased value?

(4) Can the technology be commercialized while a market opportunity exists?

4.6.3 One exemplary method of assessing commercial potential is to consider the following two factors: the technology's commercialization readiness (internally determined); and the technology's market readiness (externally determined).

a. Commercialization readiness - If a technology has been successfully demonstrated in an advanced prototype, it is much more likely to gain the attention of the market. If the innovation is merely a concept, even a good one, the prospective technology adopters may not give it much credence. This assessment is usually performed by the activity manager and entered into KIMS.

b. Market readiness - Evaluation for market readiness is primarily based on externally gathered data through the Center's CTO. Favorable market acceptance is judged by the following factors:

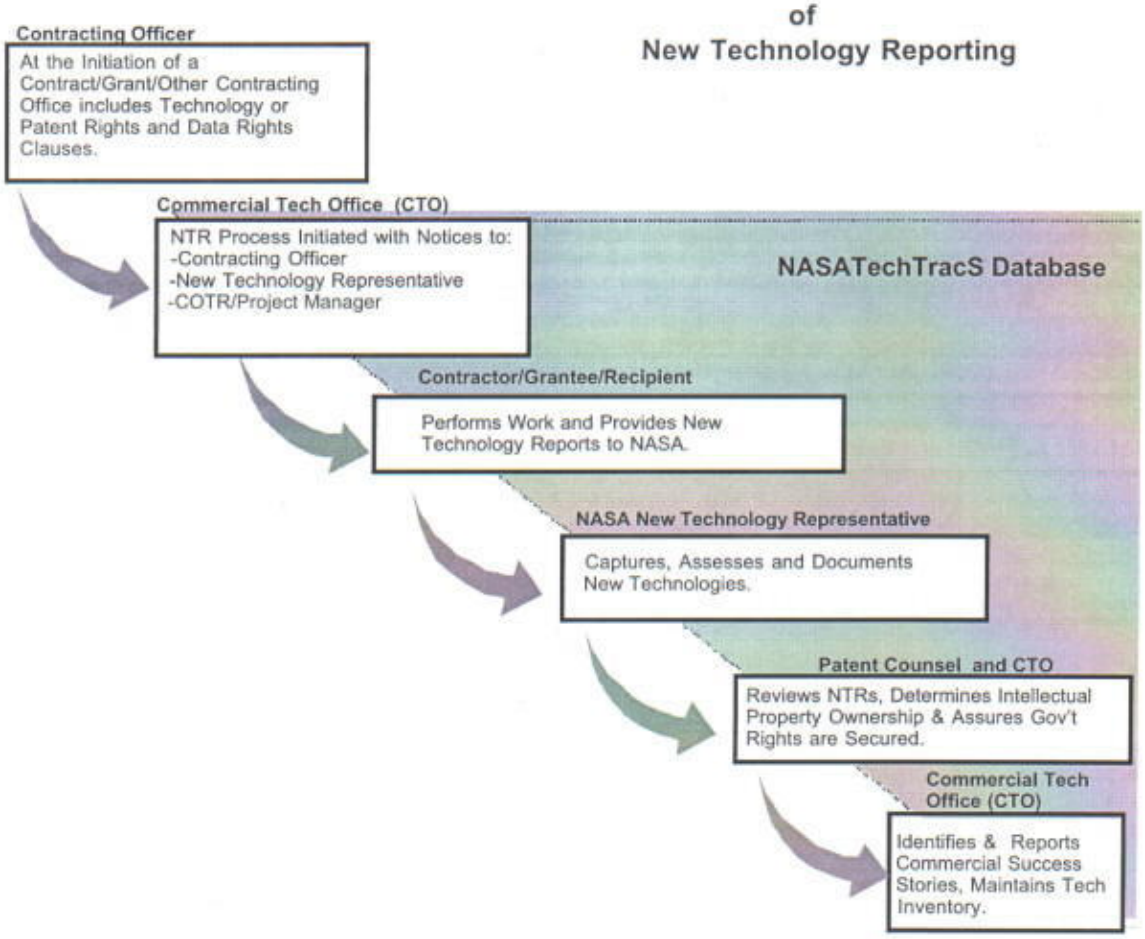
(1) Can the technology be developed into a product that meets a substantiated need;

(2) Have companies been identified that can and will take the technology from its current stage of development to a commercial product (or cause this to happen);

(3) Can the adopting companies commercialize the technology at a cost and price that will provide an acceptable return on investment; and

(4) Have sufficient end users been identified that not only need the innovation but are willing to pay an acceptable price to provide a reasonable profit margin.

Figure 4-1
Functional Overview
of
New Technology Reporting



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